

WHAT IS CLAIMED IS:

1. An optical encoder comprising:

a first optical detector whose output changes with a movement along a first direction of a series of light and dark patterns of a pitch smaller than a predetermined value;

a second optical detector whose output is constant with the movement along the first direction of the series of light and dark patterns having the pitch smaller than the predetermined value; and

a circuit which performs a calculation based on the outputs of the first and second optical detectors.

2. The optical encoder according to claim 1, wherein:

the first optical detector has

a plurality of first photodiodes arranged along the first direction; and

a plurality of wirings,

the plurality of first photodiodes consist of a plurality of diode groups, each of the photodiodes belonging to the same diode group being commonly connected to one of the wirings, and adjacent photodiodes belonging to different diode groups.

3. The optical encoder according to claim 1, wherein the second optical detector has a second photodiode whose light detecting part is larger than the pitch along the first direction.

4. The optical encoder according to claim 2, wherein the second optical detector has a second photodiode whose light detecting part is larger than the pitch along the first direction.

5. The optical encoder according to claim 1,

wherein the second optical detector has:

a plurality of second photodiodes arranged along the first direction; and

a wiring commonly connecting the plurality of second photodiodes.

6. The optical encoder according to claim 2, wherein the second optical detector has:

a plurality of second photodiodes arranged along the first direction; and

a wiring commonly connecting the plurality of second photodiodes.

7. The optical encoder according to claim 5, wherein each of the second photodiodes is provided between the first photodiodes.

8. The optical encoder according to claim 7, wherein each of the first photodiodes has a light detecting part substantially having a shape of rectangle extending along a second direction perpendicular to the first direction, and

each of the second photodiodes has a light detecting part substantially having a shape of rectangle extending along the second direction perpendicular to the first direction.

9. The optical encoder according to claim 5, wherein the wiring has a line connected to a center part of each of the second photodiode.

10. The optical encoder according to claim 2, wherein the circuit multiplies the output of the second optical detector by a constant factor, and subtracts a result of the multiplication from the output of the first optical detector.

11. The optical encoder according to claim 10,

wherein the result of the multiplication is smaller than the output of the first optical detector.

12. An optical encoder comprising:

a plurality of first photodiodes arranged in a first direction, each of the first photodiodes having a light detecting part having a longer axis along a second direction substantially perpendicular to the first direction;

a second photodiode arranged near lengthwise tips of the first photodiodes, and having a light detecting part having a longer axis along the first direction; and

a circuit which performs a calculation based on outputs of the first and second photodiodes.

13. The optical encoder according to claim 12, wherein every fourth photodiode of the first photodiodes is connected to a same wiring.

14. The optical encoder according to claim 12, wherein the circuit multiplies an output of the second photodiode by a constant factor, and subtracts a result of the multiplication from an output of the first photodiodes.

15. The optical encoder according to claim 14, wherein the result of the multiplication is smaller than the output of the first photodiodes.

16. An optical encoder comprising:

a plurality of first photodiodes arranged in a first direction;

a plurality of second photodiodes commonly connected to a same wiring, each of the second photodiodes being arranged between the first photodiodes; and

a circuit which performs a calculation based on

outputs of the first and second photodiodes.

17. The optical encoder according to claim 16, wherein each of the second photodiodes is provided between the first photodiodes.

18. The optical encoder according to claim 16, wherein every fourth photodiode of the plurality of the first photodiodes is connected to a same wiring.

19. The optical encoder according to claim 16, wherein the circuit multiplies an output of the second photodiode by a constant factor, and subtracts a result of the multiplication from an output of the first photodiodes.

20. The optical encoder according to claim 19, wherein the result of the multiplication is smaller than the output of the first photodiodes.